UNIVERSITY OF LONDON

DEPARTMENT OF BACTERIOLOGY.

POSTGRADUATE MEDICAL SCHOOL
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Telegrams
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3th.December,1951.

Dear Professor Lederberg,

The object of this letter is primarily to ask if you would be so kind as to send me:

1. A number of K 12 mutants having growth factor requirements other than methionine-biotin and leucine-threonine-aheurin,i.e. apart from mutants 58-161 or W 677 or sub-strains derived from these.
2. The K 12 mutant strain "S",isolated by Mrs.Lederberg and sensitive to the latent phage of K 12,as described by Weigle & Delbrück in the September number of the Jour.Bacteriology.

I have recently submitted a short paper to "Nature", the contents of which might interest you. In brief,I have found that if 58-161 is treated with high concentrations of streptomycin under optimal conditions for bactericidal effect,it is still capable of stimulating prototroph formation when mixed with W 677,although apparently sterile as judged by plating the washed suspension on nutrient agar. Similar treatment of W 677,however,renders it incapable of participating in recombination. This distinction between the two mutants is quite clearcut. I have also confirmed the considerable enhancing effect on the recombination rate of small,sub-mutagenic doses of UV light and shown,moreover,that this effect operates through 58-161 and not W 677. I have not yet written up this latter work for publication. It seems possible,at least,that the agent of the genetic transfer is extruded from [redacted] 58-161,but remains adherent to the cell surface since filtrates of UV-activated cultures are inactive in recombination. Thus the cell could be regarded as simply a passive carrier of its genetic elements after their extrusion,a function which streptomycin-[redacted]-killed cells could well perform. The incompetence of streptomycin-killed cultures of W 677 suggest that its role is the vital one of accepting genes. The enhancing effect of UV on the "gene donator"strain alone is very reminiscent of the UV stimulation of prophage into lytic phage.

May I thank you in advance for your courtesy in sending me the cultures I have requested above?

Yours sincerely,

William Hayes

(Dr.William Hayes,Senior Lecturer in Bacteriology)